CLAIMS

What is claimed is:

1. A method for routing network switching information, comprising:

generating at least one data frame of a second type from at least one data frame of a first type, wherein the at least one data frame of a second type comprises switching event information;

transferring and storing the at least one data frame of a second type among a plurality of network elements using a second network;

performing at least one compare operation among prespecified data frames of a second type;

generating at least one interrupt signal in response to at least one detected change resulting from the at least one compare operation; and

controlling information routing in at least one network in response to the at least one interrupt signal.

2. The method of claim 1, wherein generating at least one interrupt signal comprises:

generating at least one unit interrupt signal in response to the at least one detected change;

generating at least one memory map in response to the at least one unit interrupt signal; and

generating at least one massive interrupt signal in response to the at least one unit interrupt signal.

3. The method of claim 2, further comprising distributing the at least one memory map among the plurality of network elements.

4. The method of claim 2, wherein the at least one memory map comprises memory maps among three areas of a random access memory.

5. The method of claim 1, further comprising:

navigating among a plurality of memory locations using a plurality of memory maps in response to the at least one interrupt signal;

reading data from the plurality of memory locations relating to the switching event information; and

evaluating the switching event information.

6. The method of claim 1, further comprising coupling an output of each of the plurality of network elements to an input of the plurality of network elements.

7. The method of claim 1, wherein the at least one data frame of a first type comprises a synchronous optical network data frame.

8. The method of claim 1, wherein the at least one data frame of a second type comprises approximately 67.5 bytes transferred as a serial bit stream at a rate of approximately 4.32 megahertz.

9. The method of claim 8, wherein the at least one data frame of a second type comprises status bytes and Synchronous Optical Network (SONET) bytes including K1, K2, E1, and F1 bytes.

10. The method of claim 1, wherein the second network comprises a 16-channel bus.

11. The method of claim 1, wherein the at least one detected change is an inequality among bits of the at least one data frame of a second type.

12. The method of claim 1, further comprising generating a plurality of control and clock signals.

13. The method of claim 1, wherein the storing comprises multiplexing the at least one data frame of a second type from a plurality of ports into a memory area of a dual port random access memory.

14. The method of claim 1, further comprising receiving the at least one data frame of a first type from a plurality of network ports distributed among a plurality of switch cards.

15. The method of claim 1, further comprising distributing processing of switching event information among the plurality of network elements.

16. A method of communicating among a plurality of network elements, comprising:

capturing at least one network data frame from at least one network;

generating at least one backplane data frame from the at least one network data frame, wherein the at least one backplane data frame comprises switching event information;

transferring and storing the at least one backplane data frame among the plurality of network elements using a backplane network;

performing at least one compare operation among at least one transferred backplane data frame and at least one stored backplane data frame at prespecified intervals; and

generating at least one interrupt signal in response to at least one detected change in switching event information resulting from the at least one compare operation.

17. The method of claim 16, wherein generating at least one interrupt signal comprises:

generating at least one unit interrupt signal in response to the at least one detected change;

generating at least one memory map in response to the at least one unit interrupt signal; and

generating at least one massive interrupt signal in response to the at least one unit interrupt signal.

18. The method of claim 17, further comprising distributing the at least one memory map among the plurality of network elements.

19. The method of claim 16, further comprising:

navigating among a plurality of memory locations using a plurality of memory maps in response to the at least one interrupt signal;

reading data from the plurality of memory locations relating to the switching event information; and

evaluating the switching event information.

20. The method of claim 16, further comprising coupling an output of each of the plurality of network elements to an input of the plurality of network elements using the backplane network, wherein the backplane network includes at least one 16-channel bus.

21. The method of claim 16, wherein the at least one network data frame comprises a synchronous optical network data frame, wherein the at least one backplane data frame comprises approximately 67.5 bytes transferred as a serial bit stream at a rate of approximately 4.32 megahertz.

22. The method of claim 16, wherein the at least one detected change is an inequality among bits of the at least one network data frame.

23. The method of claim 16, wherein the storing comprises multiplexing the at least one backplane data frame from a plurality of ports into a memory area of a dual port random access memory.

24. The method of claim 16, further comprising receiving the at least one network data frame from a plurality of network ports distributed among a plurality of switch cards.

25. The method of claim 16, further comprising distributing processing of switching event information among the plurality of network elements.

26. A computer readable medium containing executable instructions which, when executed in a processing system, cause the processing system to route network switching event information, comprising:

generating at least one data frame of a second type from at least one data frame of a first type, wherein the at least one data frame of a second type comprises switching event information;

transferring and storing the at least one data frame of a second type among a plurality of network elements using a second network;

performing at least one compare operation among prespecified data frames of a second type;

generating at least one interrupt signal in response to at least one detected change resulting from the at least one compare operation; and

controlling information routing in at least one network in response to the at least one interrupt signal.

27. The computer readable medium of claim 26, wherein generating at least one interrupt signal comprises:

generating at least one unit interrupt signal in response to the at least one detected change;

generating at least one memory map in response to the at least one unit interrupt signal; and

generating at least one massive interrupt signal in response to the at least one unit interrupt signal.

28. The computer readable medium of claim 27, further comprising distributing the at least one memory map among the plurality of network elements.

29. The computer readable medium of claim 26, further comprising:

navigating among a plurality of memory locations using a plurality of memory maps in response to the at least one interrupt signal;

reading data from the plurality of memory locations relating to the switching event information; and

evaluating the switching event information.

30. The computer readable medium of claim 26, further comprising coupling an output of each of the plurality of network elements to an input of the plurality of network elements.

31. The computer readable medium of claim 26, wherein the at least one data frame of a first type is a Synchronous Optical Network (SONET) data frame, wherein the at least one data frame of a second type comprises approximately 67.5 bytes comprising status bytes and SONET bytes including K1, K2, E1, and F1 bytes transferred as a serial bit stream at a rate of approximately 4.32 megahertz.

32. The computer readable medium of claim 26, wherein the at least one detected change is an inequality among bits of the at least one data frame of a second type.

33. The computer readable medium of claim 26, wherein the storing comprises multiplexing the at least one data frame of a second type from a plurality of ports into a memory area of a dual port random access memory.

34. The computer readable medium of claim 26, further comprising receiving the at least one data frame of a first type from a plurality of network ports distributed among a plurality of switch cards.

35. The computer readable medium of claim 26, further comprising distributing processing of switching event information among the plurality of network elements.

36. An electromagnetic medium containing executable instructions which, when executed in a processing system, cause the processing system to route network switching event information, comprising:

generating at least one data frame of a second type from at least one data frame of a first type, wherein the at least one data frame of a second type comprises switching event information;

transferring and storing the at least one data frame of a second type among a plurality of network elements using a second network;

performing at least one compare operation among prespecified data frames of a second type;

generating at least one interrupt signal in response to at least one detected change resulting from the at least one compare operation; and

controlling information routing in at least one network in response to the at least one interrupt signal.

37. The electromagnetic medium of claim 36, wherein generating at least one interrupt signal comprises:

generating at least one unit interrupt signal in response to the at least one detected change;

generating at least one memory map in response to the at least one unit interrupt signal; and

generating at least one massive interrupt signal in response to the at least one unit interrupt signal.

38. The electromagnetic medium of claim 36, further comprising:

navigating among a plurality of memory locations using a plurality of memory maps in response to the at least one interrupt signal;

reading data from the plurality of memory locations relating to the switching event information; and

evaluating the switching event information.

39. The electromagnetic medium of claim 36, further comprising coupling an output of each of the plurality of network elements to an input of the plurality of network elements.

40. The electromagnetic medium of claim 36, wherein the at least one data frame of a first type is a Synchronous Optical Network (SONET) data frame, wherein the at least one data frame of a second type comprises approximately 67.5 bytes comprising status bytes and SONET bytes including K1, K2, E1, and F1 bytes transferred as a serial bit stream at a rate of approximately 4.32 megahertz.

41. The electromagnetic medium of claim 36, wherein the at least one detected change is an inequality among bits of the at least one data frame of a second type.

42. The electromagnetic medium of claim 36, wherein the storing comprises multiplexing the at least one data frame of a second type from a plurality of ports into a memory area of a dual port random access memory.

43. The electromagnetic medium of claim 36, further comprising receiving the at least one data frame of a first type from a plurality of network ports distributed among a plurality of switch cards.